M/045/017

State of Utah
DEPARTMENT OF HEALTH
DIVISION OF ENVIRONMENTAL HEALTH

Norman H. Bangerter
Governor
Suzanne Dandoy, M.D., M.P.H.
Executive Director
Kenneth L. Alkema
Director

288 North 1460 West
P.O. Box 16690
Salt Lake City, Utah 84116-0690
(801) 538-6121

Certified Mail
(Return-Receipt Requested)

December 3, 1990

Mr. Frank D. Wicks, General Manager
Barrick Mercur Gold Mine
P.O. Box 838
Tooele, UT 84074

Re: Dump Leach No. 2: NOTICE OF VIOLATION and ORDER TO SUBMIT PLANS AND INFORMATION

Dear Mr. Wicks:

Transmitted herewith is a Notice of Violation and Order from the Utah Water Pollution Control Committee for your immediate attention. This Order is a response to recent Barrick monitoring from well MW-9 which has shown concentration of cyanide in excess of EPA Drinking Water Health Advisories from the uppermost bedrock aquifer below Dump Leach No. 2. Said aquifer is found in the recharge area for the principal drinking water supply aquifer for Fairfield and Cedar Valley, Utah County.

If you have questions please contact Loren Morton at 538-6146.

Sincerely,

Utah Water Pollution Control Committee

Don A. Ostler, P.E.
Executive Secretary

Enclosures
LBM:kc/mhf
cc: Ken Alkema, Division of Env. Health
Grant Bagley, Asst. Attorney General
Glen Eurick, Barrick
David Bird, Parsons, Behle & Latimer
Stephen Matern, Tooele County Health Dept.
Ken Bousefield, Bureau of Drinking Water/Sanitation
Wayne Hedberg, DOGM
Glade Shelley, Utah County Health Dept.

UTAH WATER POLLUTION CONTROL COMMITTEE

IN THE MATTER OF BARRICK MERCUR GOLD MINE TOOELE COUNTY, UTAH	: : : :	DOCKET NUMBER GW90-03 NOTICE OF VIOLATION and ORDER TO SUBMIT PLANS AND INFORMATION

STATUTORY AUTHORITY

This NOTICE OF VIOLATION and ORDER is issued by the Executive Secretary of the UTAH WATER POLLUTION CONTROL COMMITTEE (hereafter "COMMITTEE") pursuant to the authority of the Utah Code Annotated (UCA) 26-11-7 and 26-11-12.

FINDINGS

1. Barrick Mercur Gold Mine Inc. operates a gold dump leaching operation in T.6S., R.3W., Sec. 5, SE1/4, SE1/4, Tooele County, Utah; herein referred to as Dump Leach No. 2.

2. Utah Code Annotated (UCA) section 26-11-8 provides in part that:

> (1) Except as provided in this chapter or rules adopted under it, it is unlawful for any person to discharge a pollutant into waters of the state or to cause pollution which constitutes a menace to public health and welfare, or is harmful, to wildlife, fish or aquatic life, or impairs domestic, agricultural, industrial, recreational, or other beneficial uses of water, or to place or cause to be placed any wastes in a location where there is probable cause to believe they will cause pollution. Any such action is a public nuisance.
>
> (2) It is unlawful for any person, without first securing a permit from the executive secretary as authorized by the committee, to:
>
> (a) Make any discharge not authorized under an existing valid discharge permit;
>
> (b) Construct, install, modify, or operate any treatment works or part thereof or any extension or addition thereto, or construct, install, or operate any establishment or extension or modification of or addition to it, the operation of which would probably result in a discharge.

3. Utah Wastewater Disposal Regulations, pursuant to Utah Administrative Code (UAC) R448-1-1 defines the following terms:

a) Paragraph 1.3 - "Industrial wastes means the liquid wastes from industrial processes as distinct from wastes derived principally from dwellings, business buildings, institutions and the like. It is synonymous with industrial wastewater."

b) Paragraph 1.4 - "Wastewater means sewage, industrial waste or other liquid substances which might cause pollution of water of the State. . ."

c) Paragraph 1.6 - Includes ground water within the definition of "waters of the state".

d) Paragraph 1.26 - "Treatment works means any plant, disposal field, lagoon, dam, pumping station, incinerator, or other works used for the purpose of treating, stabilizing or holding waste."

4. Utah Wastewater Disposal Regulations, pursuant to the Utah Administrative Code (UAC) R448-1-2 requires:

a) Under Paragraph 1-2.1, that: "No person shall discharge wastewater or deposit wastes or other substances in violation of the requirements of these regulations."

b) Under Paragraph 1-2.7, that: "Wastewater treatment works shall be so operated at all times as to produce effluents meeting all requirements of these regulations and otherwise in a manner consistent with the adequate protection of public health and welfare..."

5. Barrick was issued a Construction Permit for Dump Leach No. 2 on September 19, 1985 for construction of a facility designed to incorporate control technology intended to prevent the discharge of pollutants to waters of the state. The Construction Permit required that no water from the dump leach enter the ground water or surface water.

6. Full-scale operation of Dump Leach No. 2 began on July 2, 1986. On July 14, 1986 Barrick notified the Executive Secretary of the presence of fluid in the leak detection system. Subsequent chemical analysis of the fluid from the leak detection system indicated failure of the principal control technology (primary flexible membrane liner).

7. Analysis of the pregnant liquor from Dump Leach No.2, submitted by Barrick on August 28, 1989, shows that the dump leach has the potential to adversely impact public health and the environment due to concentrations of the following contaminants:

Contaminant	Ground Water Quality Standard (mg/l)	Concentration* (mg/l)	% Excess
pH	8.5 units	9.0 units	106%
Fluoride	2.4	6.8	283%
Nitrate (as N)	10	33.6	336%
Cadmium	0.01	0.055	550%
Copper	1.0	1.62	162%
Lead	0.05	0.173	346%
Silver	0.05	0.463	926%
Zinc	5.0	5.2	104%

Contaminant	EPA Drinking Water Health Advisory (mg/l)	Concentration* (mg/l)	% Excess
Cyanide-total	0.2	215	107,500%
Nickel	0.1	0.973	973%

* Highest concentration measured from three samples collected on February 22, June 21, and August 3, 1989.

8. Results of a Barrick September, 1989 chemical attenuation study of the clay secondary liner demonstrated that a barren cyanide solution, after passing through samples of the clay secondary liner exceeded the EPA Drinking Water Health Advisory for total cyanide.

9. Information from the Utah State Engineer's Office shows that Dump Leach No. 2 is found in the recharge area for the principal drinking water supply aquifer in Cedar Valley, Utah County.

10. Barrick ground water quality samples collected from monitoring well MW-9, located on the southeast edge of the dump leach and completed in the uppermost bedrock aquifer beneath Dump Leach No. 2, contained concentrations of total cyanide. One sample collected from this well on March 7, 1990 contained 0.476 mg/l of total cyanide, exceeding the EPA Drinking Water Health Advisory by more than 230%.

NOTICE OF VIOLATION

Based on the above findings, the Executive Secretary has determined that Barrick Mercur Gold Mine is in violation of the following requirements:

1. UCA 26-11-8(1) for having placed wastes in a location where there is probable cause to believe pollution will result, and for having discharged pollutants into waters of the state which constitute a menace to public health or impairs domestic or other beneficial uses of water, pursuant to FINDINGS 6 through 10.

2. UCA 26-11-8(2)a for having discharged pollutants into waters of the state not authorized under an existing valid discharge permit, pursuant to FINDINGS 5 through 10.

3. UAC R448-1-2.1 for having discharged wastewater in violation of the Utah Wastewater Disposal Regulations, pursuant to FINDING 10.

4. UCA 26-11-8(2)b and UAC R448-1-2.7 for operating Dump Leach No. 2 for more than four (4) years with failed control technology, resulting in a discharge of wastewater to waters of the state which does not meet ground water quality standards nor public drinking water health advisories, pursuant to FINDINGS 5 through 10.

ORDER

Barrick is hereby ordered to:

1. Immediately implement monthly ground water quality sampling of monitoring well MW-9 and continue monitoring until further notice from the Executive Secretary. Due to the similar nature of the monitoring, ground water quality monitoring for Dump Leach No. 2 shall include, but is not limited to all the water quality parameters and procedures found in the Barrick August 8, 1990 Subsurface Water Quality Sampling Quality Assurance and Quality Control Plan for Dump Leach No. 3 in collaboration with the Executive Secretary's October 12, 1990 Conditional Approval of said sampling plan (hereinafter the Approved Sampling Plan). The required monitoring shall be reported in writing to the Executive Secretary monthly on or before the 15th of the month following the sample collection. The reports shall include, in part:

a) Water Level Measurements - reported in both depth to ground water and water table elevation above mean sea level.

b) Field Data Sheets - including well name/number, date and time of sampling, names of sampling crew, type of sampling bail or pump, calculated casing volume, volume of water purged before sample collection and field parameter values measured.

c) Results of Sample Analysis - including date sampled, date received, date and results of each analysis, including value or concentration, units of measurement, reporting or minimum detection limit, and analytical method used.

2. Immediately implement monthly water quality sampling of the fluid in the leak detection system and continue this monitoring until the Executive Secretary can determine the compliance status of any closure and post-closure monitoring plans that will be submitted by Barrick. Due to its similar nature and parameters, leak detection fluid monitoring shall include, but is not limited to, all water quality parameters and applicable procedures found in the Approved Sampling Plan. Said monitoring shall be reported monthly in writing to the Executive Secretary on or before the 15th of the month following the sample collection. The reports shall include, in part:

a) Field Data Sheets - including name of sampling point, date and time of sampling, names of sampling crew, type of sampling equipment, flow rate, and values of field parameters measured.

b) Results of Sample Analysis - including date sampled, date received, date and results of each analysis including value or concentration, units of measurement, reporting or minimum detection limit, and analytical method used.

3. Submit within 30 days of receipt of this Order, plans and compliance schedules for the closure and post-closure monitoring of Dump Leach No. 2. This plan must include the removal of fluids from within Dump Leach No. 2. Due to similar issues and concerns, these plans for Dump Leach No. 2 must address each of the closure and post-closure issues cited for Dump Leach No. 3 in Bureau of Water Pollution Control letter of May 7, 1990. The associated compliance schedule shall contain detailed milestones for the submittal of complete engineering plans and specifications and for each phase of the closure construction and post-closure process. Execution of the closure of Dump Leach No. 2 and of post-closure monitoring shall be in compliance with the schedule approved by the Executive Secretary.

4. Implement and conduct a comprehensive remediation study, including: 1) hydrogeologic and other studies to characterize the ground water flow conditions and quality in the vicinity of Dump Leach No. 2, and 2) studies to evaluate corrective action alternatives and select a proposed option. Submit within 30 days, a plan and implementation schedule by which to complete the comprehensive remediation study, which must include but is not limited to characterization of the local ground water flow system, determination of ground water head elevation and distribution, flow directions and gradient, ground water quality, extent of any pollution, the critical pathway(s) said pollutants may travel in the subsurface, impact and fate of any or all pollutants discharged from Dump Leach No. 2, corrective action alternatives with their corresponding technical and economic advantages, and a proposed corrective action option. The implementation schedule must include detailed milestones for each phase of the project and a completion deadline. The comprehensive remediation study shall begin within 30 days of Executive Secretary approval and shall be completed in accordance with the approved schedule.

You are advised that failure to comply with this **ORDER** is a violation of Title 26, chapter 11, Utah Code Annotated 1953, as amended. Any violation of this chapter, including those mentioned herein, may be subject to up to $10,000 penalty per day per violation and up to $25,000 penalty per day per violation for willful violations. As provided in UCA 26-11-12 you have the right to appeal this **NOTICE and ORDER** by submitting a written application for a hearing before the **COMMITTEE** within 30 days of receipt of this **NOTICE and ORDER**.

Dated this 4th day of December, 1990.

Sincerely,

Utah Water Pollution Control Committee

Don A. Ostler, P.E.
Executive Secretary

DAO:lbm:kc

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